



INVESTIGATOR'S ANNUAL REPORT

United States Department of the Interior

National Park Service

All or some of the information you provide may become available to the public.

OMB # (1024-0236)
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Form No. (10-226)

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| Reporting Year: 2011 | Park: Klondike Gold Rush NHP | Select the type of permit this report addresses: Scientific Study |
| Principal Investigator: Michael G. Loso | | Office Phone: 907 564-8263 |
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| Additional investigator or key field assistants(first name, last name, office phone, office email) | | |

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| Study Title (maximum 300 characters): A field assessment of Focus Glaciers for the "Alaska NPS Glacier Inventory and Change Assessment" project | | | |
| Park-assigned Study or Activity #: KLGO-00019 | Park-assigned Permit #: KLGO-2011-SCI-0003 | Permit Start Date: Apr 29, 2011 | Permit Expiration Date: Dec 31, 2012 |
| Scientific Study Starting Date: Apr 29, 2011 | | Estimated Scientific Study Ending Date: Dec 31, 2012 | |
| For either a Scientific Study or a Science Education Activity, the status is: Continuing | | For a Scientific Study that is completed, please check each of the following that applies: <input type="checkbox"/> A final report has been provided to the park or will be provided to the park within the next two years <input type="checkbox"/> Copies of field notes, data files, photos, or other study records, as agreed, have been provided to the park <input type="checkbox"/> All collected and retained specimens have been cataloged into the NPS catalog system and NPS has processed loan agreements as needed | |
| Activity Type: Monitoring | | | |
| Subject/Discipline: Glaciers | | | |

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| Purpose of Scientific Study or Science Education Activity during the reporting year (maximum 4000 characters): NPS recently funded a collaborative project to assess the status and trends of Alaska NPS glaciers (NPS 2010). One portion of this multi-investigator project requires a narrative and data-rich summary of the history and current status of a small number (1-3 per glaciated Alaskan National Park unit) of "focus glaciers." The PI of this permit request, Dr. Loso, is responsible for the writing of these summaries and all research to support that task. Most research will be of a data gathering nature (old reports, photos, etc) and requires no fieldwork, for some subset of the focus glaciers he proposes field visits, during the summer of 2011, to enrich the narrative summaries with first hand experience. These field visits will be journalistic in nature, with an emphasis on photography, interviews of other researchers and park personnel, and collection of personal anecdotes. No samples or data will be collected, but because these visits will occur in the context of the larger research project it was decided that they should be documented by the research permitting process. Within the broader scope of the project, described above, the specific objective of this summer's fieldwork is to enrich the PI's |
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interdisciplinary understanding of the focus glaciers. The decision to include these focus glacier narratives in the project was made specifically to document the broader consequences of glacier change including:

- 1.the sheer variety of kinds and sizes of glaciers in Alaskan parks
- 2.the diverse ways that glaciers have responded to climatic change
- 3.cases where nonclimatic forcings strongly influence glacier change
- 4.short and long-term ecological consequences of glacier change in the landscape
- 5.hydrologic and geologic consequences of glacier change in the landscape
- 6.cultural responses to glaciers and glacier change over time.

The focus glaciers offer an opportunity to document and demonstrate these consequences, but the success of that effort depends upon the breadth of the author's knowledge. The PI has an interdisciplinary academic background and first-hand familiarity with some of the focus glaciers on the list, but his knowledge of others is limited. His overall objective this summer is therefore to supplement his own knowledge and that available through existing materials by visiting a subset of the focus glaciers.

While the overall project is clearly data driven, the site visits proposed here are not. In this sense, the PI will act this summer more in the role of a science journalist than a scientist. His objectives will be to develop a first-hand familiarity with the field site, collect photographs (including, in some cases, repeat photographs of historic imagery), interview when possible researchers and NPS staff working on or near the site, and qualitatively document the diverse evidence of landscape change evident at the site.

Findings and status of Scientific Study (including collections made and catalog status of retained specimens and retained material originating from such specimens) or accomplishments of Science Education Activity during the reporting year (maximum 4000 characters):

In summer 2011, PI Loso visited several NPS units to collect existing resource materials and develop first-hand familiarity with some of the focus glaciers. No materials were removed from any park except for photographs and paper/electronic copies of existing documents. All backcountry travel and camping was done using minimum impact techniques and there were no reportable incidents involving wildlife, or other park resources.

No work was conducted in KLGO this year.

Denali: On June 6 and 7, 2011, I visited Kahiltna Glacier with professional photographer JT Thomas and also UAF collaborators Anthony Arendt and Joanna Young. Travel to the Eklutna was provided by NPS helicopter, which was used while en route to complete research work permitted separately by Arendt. We stayed one night at basecamp and in the morning completed additional fieldwork before returning to Talkeetna by fixed wing. Additional work may be completed in Denali at Toklat or Muldrow Glaciers.

Gates of the Arctic: I visited the Arrigetch Glacier region from August 2-12, 2011. I was accompanied by NPS ranger Tucker Chenoweth. Travel to and from the Arrigetch was via fixed wing travel from Fairbanks to Bettles and then into Circle Lake. We traveled on foot to the Arrigetch Valley, backcountry camping along the way, and photographed the glaciers there including repeat photographs of historic work by Tom Hamilton.

Glacier Bay: With JT Thomas, I visited Glacier Bay between July 7 and 16, 2011. From July 8-11, we traveled by sea kayak up the East Arm to spend 3 days and 2 nights near the Muir Glacier terminus. We spent two days on the NPS research vessel Capelin up the West Arm near the Margerie / Grand Pacific Glacier termini, and on July 15 we traveled to Taylor Bay to spend a day near the Brady Glacier terminus. Loso then visited park headquarters in Bartlett Cove to collect library and GIS resources and to interview local scientists.

Katmai: Thomas and I visited Katmai from June 13-19, 2011. The 13th, 14th, and 19th were used for travel to and from Brooks Camp, our base for visiting the Knife Creek Glaciers. While in Brooks Camp, we stayed at the NPS yurt. From the 15th to the 18th, we hiked on foot to the Knife Creek glaciers, backcountry camping during the trip. Fourpeaked Glacier was not visited, and may be a subject of future work.

Kenai Fjords: I visited Kenai Fjords on June 3, 2011. I spent the day meeting with NPS personnel Fritz Klasner and Deb Kurtz, examining archived data at the office in Seward, and driving out to the Exit Glacier terminus for a short walk at the terminus. Subsequent visits to Aialik Glacier and Skilak Glacier are expected.

Lake Clark: From June 10-12, 2011, I visited Lake Clark with JT Thomas and stayed with NPS ranger Rich Richotte in Port Allsworth. We examined archived data with Richotte and also retired NPS staff member Page Spencer at the headquarters there, and on June 12 did an overflight of the focus glaciers (and some alternates) with Richotte and Spencer. No landings were made at the focus glaciers.

Wrangell-St. Elias: I visited Wrangell-St. Elias National Park from July 17 to July 30, 2011, accompanied by JT Thomas. From July 17-21, we camped near the terminus of Yaktse Glacier in Icy Bay, accompanying Chris Larsen (permitted separately for his work). We then flew to the BLM Bering Glacier Camp, where we conducted work relevant to this project but outside the park boundary. On July

25, we were picked up at the Bering Glacier Camp by Wrangell Mountain Air and flown to McCarthy, where we spent the following five days examining the Kennicott Glacier, based at a private home on the glacier margin but visiting the glacier during dayhikes.

For Scientific Studies (not Science Education Activities), were any specimens collected and removed from the park but not destroyed during analysis?

No

Funding specifically used in this park this reporting year that was provided by NPS (enter dollar amount):

\$0.00

Funding specifically used in this park this reporting year that was provided by all other sources (enter dollar amount):

\$0.00

List any other U.S. Government Agencies supporting this study or activity and the funding each provided this reporting year:

For Scientific Studies (not Science Education Activities), were any specimens collected and removed from the park but not destroyed during analysis?

No

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Privacy Act Notice: Scientific research, education and collecting activities within units of the National Park System that may impact parks invoke a permitting and reporting requirement per regulations at 36 CFR 1.6 (Permits), 36 CFR 2.1 (Preservation of Natural, Cultural and Archeological Resources), and 36 CFR 2.5 (Research Specimens). The National Park Service collects information about permit applicants and permittees to administer and document research, collecting, and reporting activities within parks. The information disclosed on this form is required and may result in denial of permit applications if not provided.